



403C-15G 404C-22G Series

This range has been designed to meet particular market needs. The most suitable application is on construction sites, where durability are required to supply constant power to applications such as cranes, machinery, running lighting systems. With low noise emissions, they are also suitable for powering sites not connected to a mains power supply this range is also ideal for open activities, such as shows or sporting events



Large autonomy

High capacity fuel tank for longer running time without fuel refilling.

Security

Moving and rotating parts protection against accidental contacts.

Facility of use

Generating sets are delivered ready to start and they require no special foundations, so that they can be installed anywhere.

Reliability

Engine and alternator ensure a constant, high quality power supply for the most demanding applications.

Certification

Production sites according to ISO9001:2000 by Det NorskeVeritas DNV

Hot parts protection against accidental contacts.

Industrial Silencer to reduce engine noise emissions.

A large number of options available for any kind of special application.

Perkins engines extremely high load acceptable capacity ensures instant electricity supply.

• **TECHNICAL DATA**

403C-15G

- kW_e : **14 - Stdb**y 1800rpm / **11 Prime** 1500rpm
- kVA at 0.8 fp: **17.5- Stdb**y / **13 Prime** 1500rpm
- Engine: Perkins **403C-15G**
- Fuel Consump at 100% load lts/hr: **4.8- Stdb**y / **3.7-Prime**
- Times: **4**
- Cylinders: **3**
- Aspiration: **Natural**
- Engine Speed: **1800 rpm / 1500 rpm**
- Diesel capacity in tank: **70 lts.**
- Alternator: **Marathon Electric or Stamford**
- Voltage: **220/127V. 3 Phase**
- Reconnectable: 3 Phase 440/254 V.**
Single phase 220-110 V.
Single phase 240-120V.
- Frequency: **60Hz. /50hz**
- Leads in Alternator: **12**
- Connection in Alternator: **[Y] 3 phase or Zig Zag for single phase**
- Total weight (Dry): **575.00 kgs.**

• **MANUAL CONTROL PANEL**

The generating set is supplied with a manual control panel, mounted on the genset. The panel on the base frame, in open set or in canopy, includes a manual control unit (push button), main circuit breaker (under request), and all auxiliary controls and alarms.



• **AUTOMATIC CONTROL PANEL**

The generating set is supplied with an automatic control panel, mounted on the genset. The panel on the base frame, in open set or in canopy, includes an automatic control unit that starts the genset in case of mains failure (it can be started manually too), main circuit breaker (under request), and all auxiliary controls and alarms. All controls are wired for an easy external Load Transfer Switch.



• **OPTIONAL EQUIPMENT**

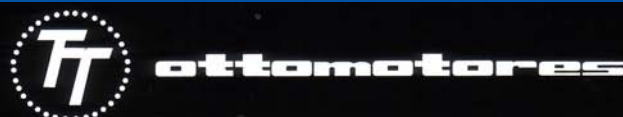
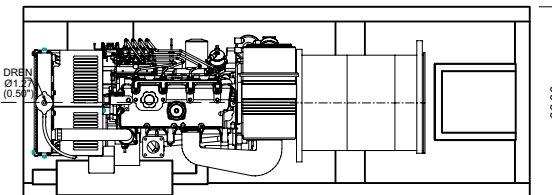
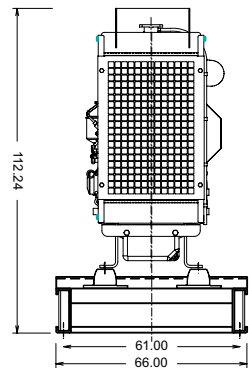
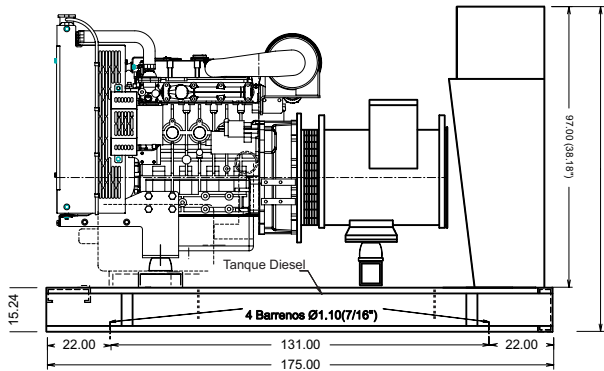
- Acoustic Enclouse 78dB(A)@7 mts
- Waterproff canopy(NO acustic)
- Additional Diesel Tank.

• **TECHNICAL DATA**

404C-22G

- kW_e : **20 - Stdb**y 1800rpm / **16 Prime** 1500rpm
- kVA at 0.8 fp: **25- Stdb**y / **20 Prime** 1500rpm
- Engine: Perkins **404C-22G**
- Fuel Consump at 100% load lts/hr: **7.3- Stdb**y / **5.4-Prime**
- Times: **4**
- Cylinders: **3**
- Aspiration: **Natural**
- Engine Speed: **1800 rpm / 1500 rpm**
- Diesel capacity in tank: **70 lts.**
- Alternator: **Marathon Electric or Stamford**
- Voltage: **220/127V. 3 Phase**
- Reconnectable: 3 Phase 440/254 V.**
Single phase 220-110 V.
Single phase 240-120V.
- Frequency: **60Hz. /50hz**
- Leads in Alternator: **12**
- Connection in Alternator: **[Y] 3 phase or Zig Zag for single phase**
- Total weight (Dry): **579.00 kgs.**

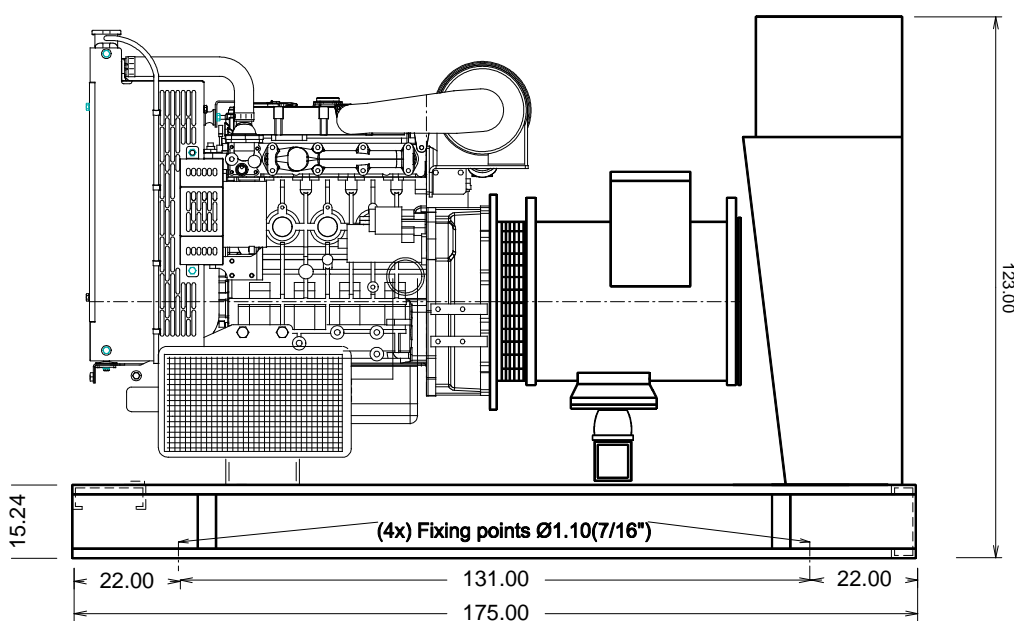
• **DIMENSIONS**



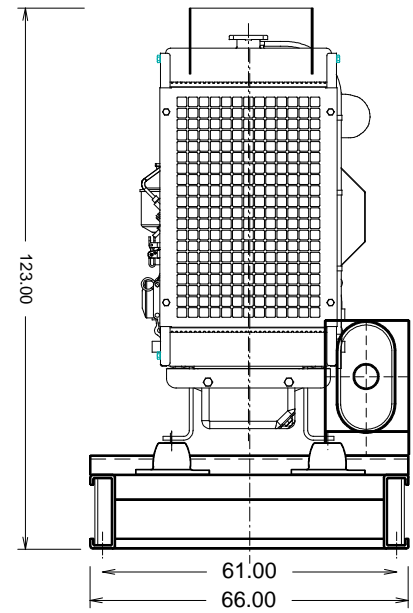
Calz. San Lorenzo No. 1150, Col. Cerro de la Estrella, C.P. 09860, Delegación Iztapalapa, México, D.F.
 Teléfonos: Ventas 5624-5602 / 5624-5604, Fax 5426-5581. Servicio a Plantas 5624-5609, Fax 5426-5523
 e-mail: ventas@ottomotores.com.mx Página web: www.ottomotores.com.mx

Energía que Mueve al Mundo.

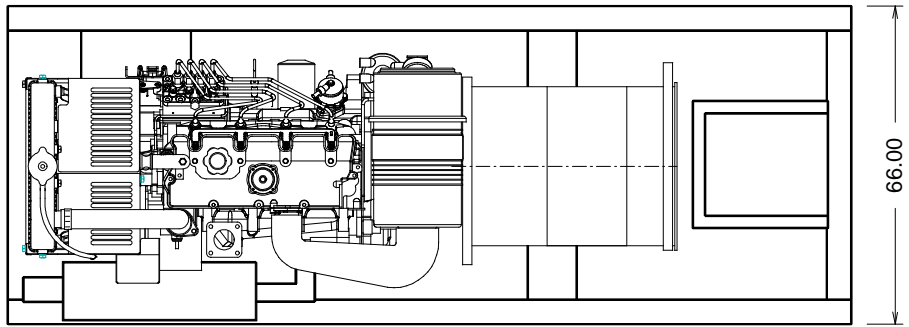
MODELS
PNE 20
PNY 20



SIDE VIEW



FRONT VIEW

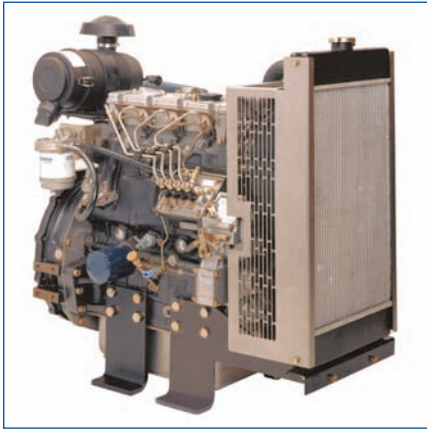


TOP VIEW

DESCRIPTION	
RADIATOR:	OT5/60
ENGINE:	404c.22G-EPAC
GENERATOR :	PSL1706
AIR FILTER:	---
BASE FRAME :	BMT-02
TOTAL WEIGHT:	DRY-577.01 Kgs.
AVMS SPRING.	4PZS

-THE GESENET DIMENSIONS ARE THE SAME BY FAMILY MODEL. THERE COULD BE ONLY DIFFERENCES ON THE ALTERNATOR LENGTH SEE SPECIFIC GENERAL ARRANGEMENT DRAWING OF CERTAIN MODEL.
-TOTAL WEIGHT COULD VARY CHECK RATING CHART FOR EACH MODEL.

Customer:	S/O:	Titulo: GENERAL ARRANGEMENT PERKINS ENGINE 404C-22G MARATHON ALTERNATOR	
		Draw: E.A.C. Date: JUL 21th 2008	Revised: R.G.C. Date: JUL 21th 2008
		Certificated: ING.V.F.F. Date: JUL 21th 2008	Code: PNE/Y-02 Dept.: Ingeniería
			Marks: cm. (pulg.) Scale: Sin esc.
			Draw: N/A Of: N/A
Rev.	Description	Date	Certificated
Reviews			
<small>Ottomotores keeps the right to change the information with out prior notice</small>			

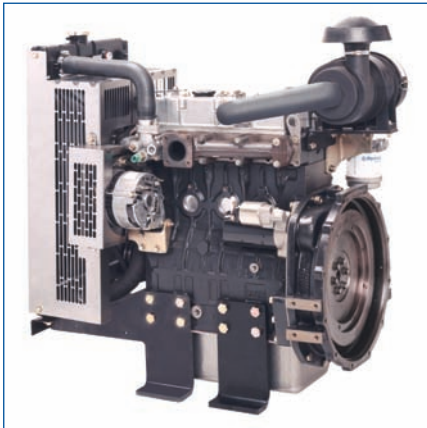


400 Series

404C-22G

Diesel Engine – Electropak

20.3 kWm 1500 rev/min
 23.9 kWm 1800 rev/min
 33.4 kWm 3000 rev/min



Compact, efficient power

A class-leading engine package coupled with an innovative, newly designed cooling pack provides optimum power density, making installation and transportation easier and cheaper. This package has been specially designed to hit the key power nodes required by the power generation industry.

Quiet, clean power

The 404C-22G has an exceptionally low noise signature making it the ideal choice for power generation in any environment. A high compression ratio also ensures clean rapid starting in all conditions. Design features ensure maximum cleanliness in terms of emissions throughout the engines operating life.

Reliable power

Developed and tested using the latest engineering techniques this engine reliably provides power when you need it. Operating and maintenance costs are reduced through excellent fuel and oil economy whilst whole-life costs are enhanced by a 500 hour service interval and a 2 year warranty. Excellent service access further improves maintenance and support is provided by a worldwide network of 4000 distributors and dealers.

The Perkins 400 Series provides compact power from a robust family of 2, 3 and 4 cylinder diesel engines, designed to meet today's uncompromising demands within the power generation industry.

The 404C-22G is a compact 4-cylinder naturally aspirated diesel engine. It's premium features provide economic and durable operation for standby duty, low gaseous emissions, overall performance and reliability.

Engine Speed (rev/min)	Type of Operation	Typical Generator Output (Net)		Engine Power			
		kVA	kWe	Gross		Net	
				kWm	bhp	kWm	bhp
1500	Prime Power	20.3	16.3	18.7	25.1	18.4	24.6
	Standby (maximum)	22.7	18.2	20.6	27.6	20.3	27.2
1800	Prime Power	23.4	18.7	22.0	29.5	21.6	28.9
	Standby (maximum)	25.3	20.2	24.3	32.6	23.9	32.1
3000	Prime Power	33.8	27.0	31.2	41.8	30.2	40.5
	Standby (maximum)	36.7	29.3	34.4	46.1	33.4	44.8

The above ratings represent the engine performance capabilities to conditions specified in ISO 8528/1, ISO 3046/1:1986, BS 5514/1.

Derating may be required for conditions outside these; consult Perkins Engines Company Limited.

Generator powers are typical and are based on typical alternator efficiencies and a power factor (cos ϕ) of 0.8.

Fuel specification: BS 2869: Part 2 1998 Class A2 or ASTM D975 D2.

Lubricating oil: To API CH4/ACEA E5.

Rating Definitions

Prime Power: Power available at variable load in lieu of a main power network. Overload of 10% is permitted for 1 hour in every 12 hours operation.

Standby (maximum): Power available at variable load in the event of a main power network failure. No overload is permitted.

All information in this document is substantially correct at time of printing and may be altered subsequently

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400 Series

404C-22G

Standard ElectropaK Specification

Air inlet

- Mounted air filters

Fuel system

- Mechanically governed cassette type fuel injection pump
- Split element fuel filter

Lubrication system

- Wet steel sump with filler and dipstick
- Spin-on-full-flow lub oil filter

Cooling system

- Thermostatically-controlled system with belt driven circulating pump and pusher fan
- Mounted radiator and piping

Electrical equipment

- 12 volt starter motor and 12 volt 55 amp alternator with DC output
- Oil pressure and coolant temperature switches
- 12 volt shut off solenoid energised to run
- Glow plug cold start aid and heater/starter switch

Flywheel and housing

- 1500/1800 rev/min
 - High inertia flywheel to SAE J620 Size 7½ Heavy
 - Flywheel housing SAE 4 Long
- 3000/3600 rev/min
 - High inertia flywheel to SAE J620 Size 7½ Light
 - Flywheel housing SAE 4 Short

Mountings

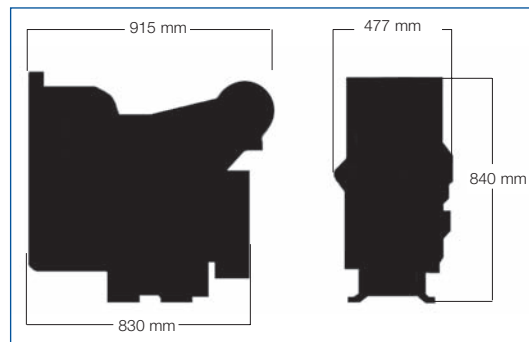
- Front and rear mounting bracket

Literature

- User's Handbook

Optional Equipment

- Exhaust silencer
- Workshop manual
- Parts book



General Data

Number of cylinders	4
Cylinder arrangement	Vertical in-line
Cycle	4 stroke
Induction system	Natural aspiration
Combustion system	Indirect injection
Cooling system	Water-cooled
Bore and stroke	84 x 100 mm
Displacement	2216cc
Compression ratio	23.3:1
Direction of rotation	Anti-clockwise viewed on flywheel
Total lubrication system capacity	10.6 litres
Total coolant capacity	6.98 litres
Length	915 mm
Width	477 mm
Height	840 mm
Dry weight (engine)	242 kg (1500/1800 rev/min) 218 kg (3000 rev/min)

Final weight and dimensions will depend on completed specification.

Engine Speed	Fuel Consumption					
	1500 rev/min		1800 rev/min		3000 rev/min	
	g/kWh	l/hr	g/kWh	l/hr	g/kWh	l/hr
At Standby Rating	254	6.2	252	7.3	254	10.4
At Prime Power	243	5.4	245	6.4	256	9.5
At 75% Prime Power	243	4.0	247	4.8	269	7.5
At 50% Prime Power	265	2.9	269	3.5	313	5.8



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**MARATHON ELECTRIC
SYNCHRONOUS AC GENERATOR
TYPICAL SUBMITTAL DATA**

Basic Model 283CSL1507

Date: 03/10/05

Kilowatt ratings at		1800 RPM	60 Hertz				12 Leads			
kW (kVA)		3 Phase	0.8 Power Factor				Dripproof or Open Enclosure			
Voltage*	Class B	Class F						Class H		
	80° C ① Continuous	90° C ① Lloyds	95° C ① ABS	105° C † British Standard	105° C ① Continuous	130° C ① Standby	125° C † British Standard	125° C ① Continuous	150° C ① Standby	
240/480	27.0 (33.8)	28.0 (35.0)	28.0 (35.0)	31.0 (38.8)	31.0 (38.8)	33.0 (41.3)	33.0 (41.3)	33.0 (41.3)	35.0 (43.8)	
230/460	26.0 (32.5)	27.0 (33.8)	27.0 (33.8)	30.0 (37.5)	30.0 (37.5)	32.0 (40.0)	32.0 (40.0)	32.0 (40.0)	34.0 (42.5)	
220/440	25.0 (31.3)	26.0 (32.5)	26.0 (32.5)	28.0 (35.0)	28.0 (35.0)	31.0 (38.8)	31.0 (38.8)	31.0 (38.8)	33.0 (41.3)	
208/416	24.0 (30.0)	25.0 (31.2)	25.0 (31.2)	27.0 (33.8)	27.0 (33.8)	30.0 (37.5)	30.0 (37.5)	30.0 (37.5)	32.0 (40.0)	
190/380	22.0 (27.5)	23.0 (28.8)	23.0 (28.8)	25.0 (31.3)	25.0 (31.3)	27.0 (33.8)	27.0 (33.8)	27.0 (33.8)	29.0 (36.3)	

① Rise by resistance method, Mil-Std-705, Method 680.1b.

† Rating per BS 5000.

Submittal Data: 480 Volts, 37.5 kVA, 1800 RPM, 60 Hz, 3 Phase					
Mil-Std-705B			Mil-Std-705B		
Method	Description	Value	Method	Description	Value
301.1b	Insulation Resistance	> 1.5 Meg	505.3b	Overspeed	2250 RPM
302.1a	High Potential Test		507.1c	Phase Sequence CCW-ODE	ABC
	Main Stator	2000 Volts	601.4a	L-L Harmonic Maximum - Total (Distortion Factor)	3.0%
	Main Rotor	1500 Volts	601.4a	L-L Harmonic Maximum - Single	2.5%
	Exciter Stator	1500 Volts	601.1c	Deviation Factor	6.0%
	Exciter Rotor	1500 Volts	---	TIF (1960 Weightings)	<50
401.1a	Stator Resistance, Line to Line		Additional Prototype Mil-Std Methods are Available on Request.		
	High Wye Connection	0.438 Ohms	--	Generator Frame	280
	Rotor Resistance	1.183 Ohms	--	Type	Ext. Voltage Regulated, Brushless
	Exciter Stator	18.83 Ohms	--	Insulation	Class H
	Exciter Rotor	0.127 Ohms	--	Coupling - Single Bearing	Flexible
410.1a	No Load Exciter Field Amps at 480 Volts Line to Line	0.49 A DC	--	Amortisseur Windings	Full
420.1a	Short Circuit Ratio	0.78	--	Cooling Air Volume	250 CFM
421.1a	Xd Synchronous Reactance	1.91 pu	--	Exciter	Rotating
422.1a	X2 Negative Sequence Reactance	0.215 pu	--	Voltage Regulator	SE350
423.1a	X0 Zero Sequence Reactance	0.04 pu	--	Voltage Regulation	1%
425.1a	X'd Transient Reactance	0.0689 pu			
426.1a	X''d Subtransient Reactance	0.0645 pu			
427.1a	T'd Transient Short Circuit Time Constant	0.025 sec.			
428.1a	T''d Subtransient Short Circuit Time Constant	0.008 sec.			
430.1a	T'do Transient Open Circuit Time Constant	0.8 sec.			
432.1a	Ta Short Circuit Time Constant of Armature Winding	0.0167 sec.			

* Voltage refers to wye (star) connection, unless otherwise specified.

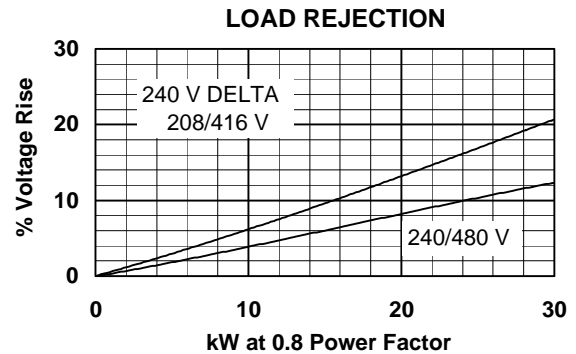
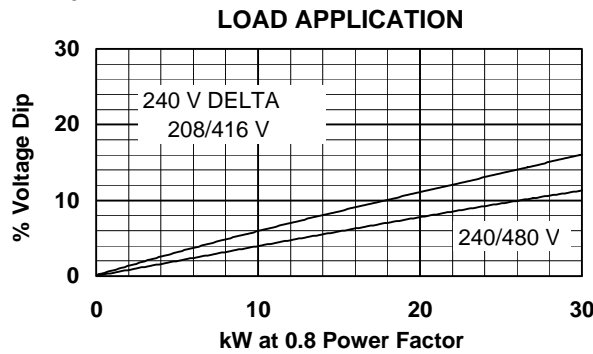
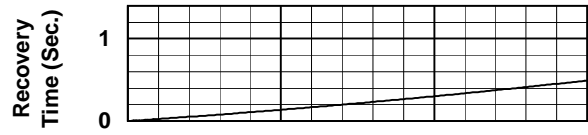
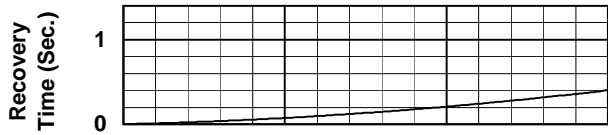


MARATHON ELECTRIC
SYNCHRONOUS AC GENERATOR
TYPICAL DYNAMIC CHARACTERISTICS

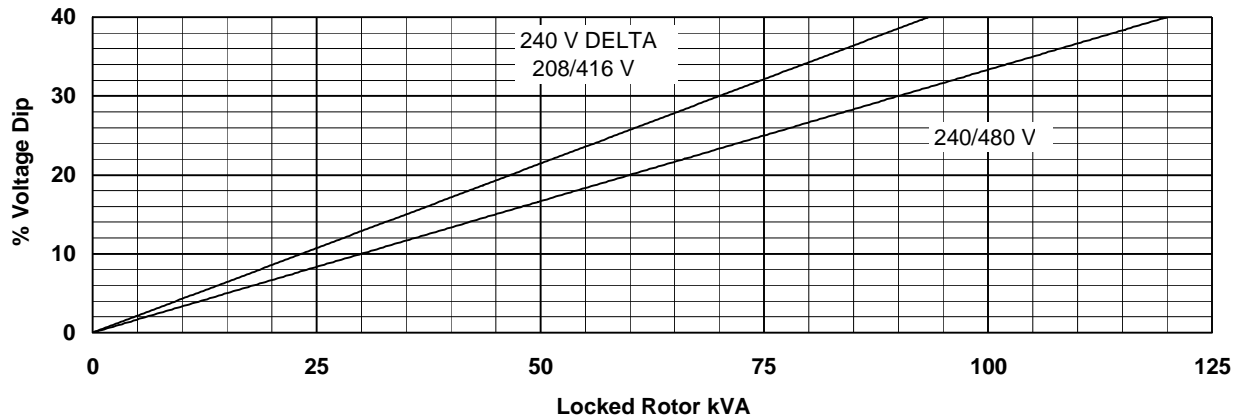
Basic Model 283CSL1507

Date: 03/10/05

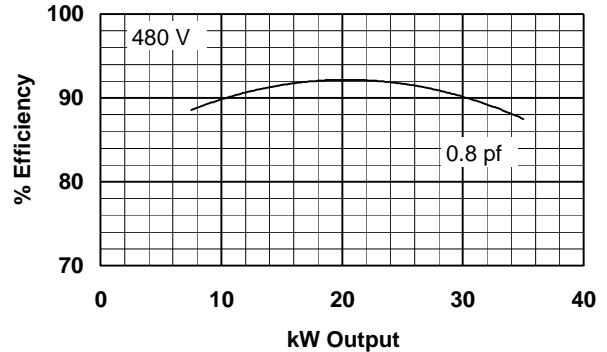
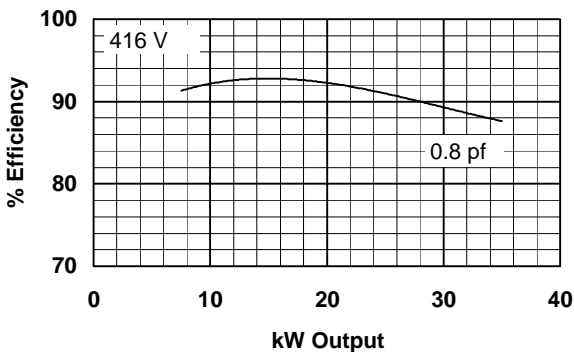
60 HERTZ



TYPICAL MOTOR STARTING CHARACTERISTICS



TYPICAL GENERATOR EFFICIENCY



Voltage refers to wye (star) connection, unless otherwise specified.